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Determination of Cyberchondria Severity of Dialysis Technician Candidates

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ABSTRACT

In the globalizing world, the internet makes a large part of health information accessible to people. In the internet world, information can be unverifiable, misleading, incomplete or false. This situation has revealed the term cyberchondria, which means that diseases are searched a lot on the internet and cause anxiety in the person. The aim of this descriptive and cross-sectional study was to determine the severity of cyberchondria in dialysis technician candidates. The study was conducted with 89 participants who were 1st year students studying in the dialysis department of a foundation university. The data were collected online and face-to-face from individuals who agreed to participate in the study and met the inclusion criteria, and the interview lasted 15-20 minutes for each participant. The data of the study were collected with the "Personal Information Form" and the "Short Form of Cyberchondria Severity Questionnaire" prepared by the researchers. The mean age of the participants was 21 years (Mean = 20.88, SD = 3.97) and most women were individuals who did not have a chronic disease, had 3-4 hours of internet use per day, searched for signs and symptoms of the disease on websites, found the websites they used safe, and did not use drugs without a physician's prescription, no matter how much internet research they did. When Cronbach's Alpha coefficient of the scale was examined, the cyberchondria scale levels of the participants were found to be high. When the Cyberchondria Severity Scale score averages are examined, there was no significant relationship between age, gender, online research of the signs and symptoms of the disease and the scale score scores of individuals who did not use drugs not prescribed by the physician. As a result of the examination made according to the type of education, the cyberchondria levels of individuals who received education in secondary education were found to be higher than those who studied in normal education. Cyberchondria levels were found to be higher in the participants who found the sites researched on the internet safe and did not have chronic diseases. People can easily access information through the internet. It is important to control the information in order to make the health-related information encountered on the Internet accurate, complete and functional. In order to access useful information on the Internet, it is recommended to hold congresses, symposiums and informative meetings on access to the right information for students in schools.

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INTRODUCTION

In the globalizing world, the internet makes a large part of health information accessible to people (1). According to TÜİK 2022 data, 61.1% of men and 68.2% of women search for health-related information on the internet (2). In the internet world, information can be unverifiable, misleading, incomplete or false (3). This situation has revealed the term cyberchondria, which means that diseases are searched a lot on the internet and cause anxiety in the person (4). Cyberchondriasis is a combination of the words "cyber" and "hypochondriasis" (5). Obtaining health information by searching for real or unreal disease symptoms on the internet is called cyberchondria. Cyberchondria research has been defined as cyberchondriac (6).

The word hypochondriasis has been changed from DSM-5 to illness anxiety disorder. However, the term cyberchondria is not mentioned in the DSM-5. This situation makes it difficult to diagnose the disease and may delay its treatment (7). Cybercondial individuals may encounter negative situations such as mental health problems, not trusting physicians, accepting internet research results as correct, decreasing quality of life and self-esteem, neglecting their own care, and deterioration in social relations (5,8-10). In addition, as a result of these situations, hospital admissions may increase and health care may be adversely affected (11). When the literature is examined, the number of studies based on cyberchondria is low (12-13).

This study is planned to determine the severity of cyberchondria in dialysis technician candidates. The research question sought to be answered within the scope of the study:

- Is there a relationship between the sociodemographic characteristics of the students participating in the study and the severity of cyberchondria with the short form?

METHODS

Place and Time of the Research

The research was conducted between 30.09.2023 and 31.12.2023 with participants who are 1st year students studying in the dialysis department of a foundation university.

Purpose and Type of Research

The aim of this descriptive and cross-sectional study was to determine the severity of cyberchondria in dialysis technician candidates.

Universe and Sample of the Research

The dialysis department of the Vocational School of Health Services of a foundation university and 1st year students studying in primary and secondary education formed the study universe. In this study, the sampling method was not used and students who met the research criteria were included. The following criteria were taken into account in the inclusion of participants in the sampling:

- To be a student at the relevant university and department,

- Not having a Turkish speaking, communication problem or psychiatric diagnosis made by a physician,

-Volunteering to participate in research.

Participants who did not meet the inclusion criteria were not included in the study.

Data Collection and Data Collection Tools

The data were collected online and face-to-face from individuals who agreed to participate in the study and met the inclusion criteria, and the interview lasted 15-20 minutes for each participant. The data of the study were collected with the "Personal Information Form" and the "Short Form of Cyberchondria Severity Questionnaire" prepared by the researchers.

***Personal Information Form**:* It has been prepared by the researcher in line with the literature. It consists of 10 questions questioning socio-demographic characteristics (age, gender, marital status), chronic disease, total daily internet usage time, internet use time at home/work, daily internet usage time at school, the status of researching the signs and symptoms related to the disease on the internet, and whether the drug not prescribed by the physician is used.

Short Form of Cyberchondria Severity Euphoria

It was developed by McElroy et al. (2019), (14) and its validity reliability into Turkish was made by Tuğtekin and Barut Tuğtekin in 2021 (15). The scale has a 5-point Likert structure consisting of 12 items and 4 factors ("Compulsion", "Distress", "Extremism" and "Confidence Seeking"). The lowest total score that can be obtained from the scale is 0 (zero), and the highest score is 60 (sixty).

Analysis of Data

Analyses were performed with SPSS 25.0 program. In the analysis, the significance level was determined as 5%. Number, percentage, mean and standard deviation were used as descriptive statistics. Normal distribution was checked by Kolmogorov-Smirnov and Shapiro-Wilk tests. If the normal distribution assumption is satisfied, the independent sample t-test was used to compare the means of the two independent groups. When the normal distribution assumption could not be satisfied, the Mann Whitney U test was used to compare the scores of two independent groups; Kruskal Wallis H test was used to compare the scores of at least three independent groups. Correlation analysis was performed to determine the relationships between quantitative variables. Spearman correlation was used because the normal distribution could not be achieved. Cronbach's Alpha reliability coefficient was calculated for the 12-item scale.

Limitations of the Study

This study is a single-center study and includes 1st year students studying in the Dialysis Department of the Vocational School of Health Services of the relevant university. It cannot be generalized to all students.

Ethical Dimension of Research

In order to conduct the research, written permission was obtained from the ethics committee of the relevant university and the institution where the study was conducted. Necessary permissions were obtained from the authors of the scales to be used in the study before the study. Verbal and written permission and informed voluntary consent were obtained from the students who will participate in the research.

RESULTS

Descriptive Statistics

As stated in Table 1, 78.7% (n = 70) of the participants were female. 21.3% (n = 19) were male.

98.9% (n = 88) of the participants were single. Only 1 participant is married.

41.6% (n = 37) of the participants receive education in secondary education. 58.4% (n = 52) of the participants are educated in regular education.

The mean age of the 89 participants was 21 years (Mean = 20.88, SD = 3.97).

Table 1. Distribution of demographic characteristics of participants (n = 89).

		n	%
Gender	Woman	70	78.7
	Male	19	21.3
	Total	89	100.0
Marital status	Single	88	98.9
	Married	1	1.1
	Total	89	100.0
Level of education	Evening Education	37	41.6
	Normal Education	52	58.4
	Total	89	100.0
Age (Mean ± SD)		20.88 ± 3.97	

SD: Standard deviation.

Table 2 shows the distribution of the participants' chronic diseases, their total daily frequency of internet use, their daily internet usage frequency at home/work and their daily internet use frequency at school.

As stated in Table 2, 5.6% (n = 5) of the participants had a chronic disease. 94.4% (n = 84) of the participants did not have any chronic disease.

40.4% of the participants (n = 36) stated that they used the internet for a total of 3-4 hours a day. 27% of the participants (n = 24) stated that they use the internet for a total of 5-6 hours a day.

A total of 31.5% of the participants (n = 28) stated that they use the internet for 5-6 hours a day at home or at work. 28.1% (n = 25) of the participants stated that they use the internet for 1-2 hours a day at home or at work. 23.6% (n = 21) of the participants stated that they use the internet for 3-4 hours a day at home or at work.

51.7% (n = 46) of the participants stated that they used the internet less than 1 hour a day at school. 37.1% (n = 33) of the participants stated that they used the internet for 1-2 hours a day at school. 9% of the participants (n = 8) stated that they used the internet for 3-4 hours a day at school.

Only 2.2% (n = 2) of the participants stated that they used the internet for 7-8 hours a day at school.

Table 2. Distribution of participants' chronic diseases, total daily internet usage frequency, daily internet use frequency at home/work, and daily internet use frequency at school (n = 89).

		n	%
Presence of chronic disease	Has a chronic illness	5	5.6
	No chronic disease	84	94.4
	Total	89	100.0
Total frequency of internet use per day	Less than 1 hour	2	2.2
	1-2 hours	13	14.6
	3-4 hours	36	40.4
	5-6 hours	24	27.0
	7-8 hours	9	10.1
	9 hours and more	5	5.6
	Total	89	100.0
Frequency of daily internet use at home/work	Less than 1 hour	5	5.6
	1-2 hours	25	28.1
	3-4 hours	21	23.6
	5-6 hours	28	31.5
	7-8 hours	6	6.7
	9 hours and more	4	4.5
	Total	89	100.0
Frequency of daily internet use at school	Less than 1 hour	46	51.7
	1-2 hours	33	37.1
	3-4 hours	8	9.0
	7-8 hours	2	2.2
	Total	89	100.0

Table 3 shows the symptoms and findings of the participants related to the disease, their status of searching on the internet, their status of finding the sites used reliable, and the distribution of their drinking status when they find a drug that is not prescribed by their physician positive after internet research.

As shown in Table 3, 67.4% (n = 60) of the participants stated that they searched the symptoms and signs related to the disease on the internet; 32.6% (n = 29) stated that they did not search for the symptoms and signs related to the disease on the internet.

As stated in Table 3, 38.2% (n = 34) of the participants find the sites used reliable. 29.2% of the participants (n = 26) did not find the sites used reliable.

As stated in Table 3, 18% (n = 16) of the participants drink a drug that is not prescribed by their physician if they find it positive after internet research. 82% of the participants (n = 73) stated that they did not drink a drug that was not prescribed by their physician, even if they found it positive after internet research.

Table 3. Distribution of the participants' symptoms and findings about the disease on the internet, the status of finding the sites used reliable, and the distribution of their drinking status when they found a drug that was not prescribed by their physician positive after internet research (n = 89).

		n	%
The status of researching the signs and symptoms of the disease on the internet	Investigating	60	67.4
	Not investigating	29	32.6
	Total	89	100.0
Trusted Finding Sites Used	Not investigating	29	32.6
	Finds it reliable	34	38.2
	Doesn't find it reliable	26	29.2
	Total	89	100.0
Drinking a drug that is not prescribed by the physician when he finds it positive after internet research	Drinking	16	18.0
	Doesn't drink	73	82.0
	Total	89	100.0

Table 4 shows the mean and standard deviations of the participants' scores from the Cyberchondria Severity Scale.

As shown in Table 4, the average score of the 89 participants from the 12-item scale was 31.49 ± 7.28. The maximum score that can be obtained from the scale is 60.

Reliability analysis was performed for the 12-item scale. Cronbach's Alpha reliability coefficient was calculated as .744. Cronbach's Alpha reliability coefficient greater than .60 indicates that the scale is reliable (17).

Table 4. Mean and standard deviations of participants' scores on the scale (n = 89).

No		**Mean ± SD**
1	If I notice an unexpected change in my body, I try to look up the cause on the internet.	3.07 ± 1.08
2	Doing online research on symptoms of illness or health problems I feel takes up enough time to prevent me from reading/following content such as news/sports/entertainment in daily life.	1.97 ± 1.07
3	It is not enough for me to do research on just one website about the health problem or ailment I am experiencing.	3.13 ± 1.45
4	When I research online, I start to panic if I realize that I have a symptom that indicates a rare or serious health problem.	2.37 ± 1.17
5	Researching the symptoms of illness or the health problem I feel online allows me to consult my doctor.	3.81 ± 1.10
6	I do a lot of online research on different web pages for similar symptoms.	3.13 ± 1.20
7	Searching the internet for symptoms of illness or health problems I feel interrupts my daily work (for example, when I write an email or type on a computer).	1.83 ± 1.05
8	I think my health is in good shape until I come across a sign of a serious illness while researching online.	2.52 ± 1.25
9	I feel more anxious or sadder after researching the symptoms of illness or the health problems I feel on the internet.	2.24 ± 1.29
10	Researching the symptoms or medical causes of illness online causes my daily social activities to be interrupted (e.g., reduced time spent with friends/family)	1.98 ± 1.15
11	When I meet with my doctor, I tell him that I need a different diagnosis or procedure in line with the information I have obtained through my research on the internet (for example, biopsy, blood test)	2.25 ± 1.24
12	Doing online research on symptoms or health problems I feel makes me want to consult with different people who work in the health field (for example, health consultants or health officers).	3.20 ± 1.13
	Total Score Average	**31.49 ± 7.28**

SD: Standard deviation.

Hypothesis Testing

In this section, the total scores obtained from the 12-item Cyberchondria Severity scale are compared according to various variables.

In Table 5, the total mean scores obtained from the 12-item scale were compared according to gender and education level. In the analyses in Table 5, independent samples t-test was used due to the normal distribution of the data.

As shown in Table 5, the mean scale of women is 30.97. The average scale of men is 33.42. According to the results of the independent samples t-test, there was no statistically significant difference between the scale averages of men and women (t(21.7) = -0.993, p = .332 > .05). This finding shows that the cyberchondria levels of men and women are at a similar level.

As shown in Table 5, the average scale of the participants who received education in regular education was 29.83. The average scale of the participants who received education in secondary education was 33.84. According to the results of the independent samples t-test, there is a statistically significant difference between the scale averages of the participants who received education in regular education and those who received education in secondary education (t(87) = -2.646, p = .010 < .05). This finding shows that the participants who received education in secondary education had higher levels of cyberchondria than the participants who received education in regular education.

Table 5. Comparison of Cyberchondria scale score averages by gender and education level.

	n	Mean ± SD	t	df	p
Gender					
Woman	70	30.97 ± 6.24	-0.993	21.742	.332
Male	19	33.42 ± 10.25			
Level of education					
Regular teaching	52	29.83 ± 6.44	-2.646	87	.010 *
Secondary education	37	33.84 ± 7.82			

*There is a significant difference in the level of p < .05. t: Independent samples t-test, SD: Standard deviation, df: Degrees of Freedom.

Correlation analysis was performed to examine whether there was a relationship between the ages of the participants and the total scores obtained from the scale. Spearman correlation was used because the ages were not normally distributed. Table 6 shows the result of Spearman correlation analysis.

According to the results of the correlation analysis in Table 6, there is no significant relationship between the ages of the participants and the total scores obtained from the scale (r = -.015, p = .892 > .05). Since the number of participants who were married was only 1, analysis could not be made according to marital status.

Table 6. Relationship between age and scale total scores (n = 89).

		Age	Scale total score
Age	*r*	1.000	-.015
	p	.	.892
	n	89	89
Scale total score	*r*	-.015	1.000
	p	.892	.
	n	89	89

Spearman correlation.

In Table 7, the averages of the scores obtained from the scale were compared according to the symptoms and findings of the participants related to the disease on the internet, their status of finding the sites used reliable, and their drinking status when they found a drug that was not prescribed by their physician positive after internet research.

According to the independent samples t-test results in Table 7, there was no statistically significant difference between the scale averages of the participants who searched the symptoms and signs related to the disease on the internet and the participants who did not (t(87) = 1.544, p = .126 > .05).

As shown in Table 7, the average scale of the participants who found the sites used reliable was 34.0. The average scale of the participants who did not find the sites used reliable was 30.12. According to the independent samples t-test result, the difference between the two means was significant (t(58) = 2.236, p = .029 < .05). This finding shows that the participants who find the sites used reliable have higher levels of cyberchondria than those who do not find them reliable.

According to the independent samples in Table 7, there is no statistically significant difference between the scale averages of the participants who smoked and the participants who did not smoke if they found a drug that was not prescribed by their physician positive after an internet search (t(49.728) = 1.893, p = .064 > .05).

Table 7. Comparison of scale averages according to various variables.

		n	Mean ± SD	t	df	p
The status of researching the signs and symptoms of the disease on the internet	Investigating	60	32.32 ± 6.89	1.544	87	.126
	Not investigating	29	29.79 ± 7.89			
Trusted Finding Sites Used	Finds it reliable	34	34.00 ± 7.54	2.236	58	.029*
	Doesn't find it reliable	26	30.12 ± 5.29			
Drinking a drug that is not prescribed by the physician when he finds it positive after internet research	Drinking	16	33.50 ± 3.65	1.893	49.728	.064
	Doesn't drink	73	31.05 ± 7.81			

In Table 8, scale scores are compared according to the presence of a chronic disease. There are only 5 participants with chronic diseases. There are 84 participants who do not have a chronic disease. The number of participants in the two groups is extremely unbalanced. The fact that the two groups are numerically unbalanced will not yield reliable results for a statistical analysis. It is recommended that this analysis should not be included in the research.

In Table 8, non-parametric test was preferred because there were only 5 participants in a group. Mann Whitney U test was used. Table 8 shows the result of the Mann Whitney U test.

According to the Mann Whitney U test result in Table 8, there is a significant difference between the scale scores of the participants with chronic disease and the participants without (Z = -2.490, p = .013 < .05). The average scale score of the participants with chronic diseases was 17.10. The average scale score of the participants who did not have a chronic disease was 46.66. This finding shows that participants without chronic diseases have higher levels of cyberchondria than those who do.

Table 8. Comparison of scale scores according to the presence of a chronic disease.

	n	Mean ± SD	Rank Avg.	With	p
Presence of chronic disease					
Yes	5	24.60 ± 3.21	17.10	-2.490	.013*
No	84	31.90 ± 7.26	46.66		
Total	89				

*There is a significant difference in the level of p < .05. Mann Whitney U test. SD: Standard deviation.

In Table 9, scale scores are compared according to the total daily frequency of internet use. The non-parametric test was preferred because the participants in the groups were unbalanced and there were less than 10 participants in 3 groups. Kruskal Wallis H test was used. Table 9 shows the Kruskal Wallis H test result.

According to the Kruskal Wallis H test result in Table 9, there was a significant difference in the scale scores of the participants according to their total daily internet usage frequencies (χ^2 = 6.913, SD = 5, p = .227 > .05).

Table 9. Comparison of scale scores according to total daily internet usage frequencies.

	n	Mean ± SD	Rank Avg.	χ^2	df	p
Total frequency of internet use per day						
Less than 1 hour	2	39.50 ± 3.54	79.50	6.913	5	.227
1-2 hours	13	32.54 ± 7.39	47.35			
3-4 hours	36	29.67 ± 6.16	39.01			
5-6 hours	24	33.42 ± 8.68	50.75			
7-8 hours	9	30.67 ± 7.47	42.39			
9 hours and more	5	31.00 ± 5.79	45.30			
Total	89					

χ^2: Kruskal Wallis H test statistic, SD: Standard deviation, df: Degrees of freedom.

In Table 10, scale scores are compared according to the frequency of daily internet use at home/work. Kruskal Wallis H test was used because the participants in the groups were unbalanced and there were less than 10 participants in 3 groups. Table 10 shows the Kruskal Wallis H test result.

According to the Kruskal Wallis H test result in Table 10, the scale scores of the participants showed a significant difference according to the frequency of daily internet use at home/work (χ^2 = 5.742, SD = 5, p = .332 > .05).

Table 10. Comparison of scale scores according to the frequency of daily internet use at home/work.

		n	Mean ± SD	Rank Avg.	χ^2	df	p
Frequency of daily internet use at home/work	Less than 1 hour	5	33.80 ± 6.76	55.40	5.742	5	.332
	1-2 hours	25	30.52 ± 7.22	41.18			
	3-4 hours	21	29.62 ± 6.55	38.57			
	5-6 hours	28	33.04 ± 8.16	49.79			
	7-8 hours	6	34.67 ± 6.19	58.42			
	9 hours and more	4	29.00 ± 6.06	36.00			
	Total	89					

χ^2: Kruskal Wallis H test statistic SD: Standard deviation, df: Degrees of freedom.

In Table 11, scale scores are compared according to the frequency of daily internet use at school. Kruskal Wallis H test was used because the participants in the groups were unbalanced and there were less than 10 participants in 2 groups. Table 11 shows the Kruskal Wallis H test result.

According to the Kruskal Wallis H test result in Table 11, there is a significant difference in the scale scores according to the frequency of daily internet use at school (χ^2 = 0.824, SD = 3, p = .844 > .05).

Table 11. Comparison of scale scores according to the frequency of daily internet use at school.

	n	Mean ± SD	Rank Avg.	χ^2	df	p
Frequency of daily internet use at school						
Less than 1 hour	46	31.59 ± 6.76	46.10	0.824	3	.844
1-2 hours	33	31.00 ± 6.77	44.33			
3-4 hours	8	32.50 ± 12.62	39.00			
7-8 hours	2	33.50 ± 2.12	54.75			
Total	89					

χ^2: Kruskal Wallis H test statistic, SD: Standard deviation, df: Degrees of freedom.

DISCUSSION

This descriptive and cross-sectional study was conducted to determine the severity of cyberchondria in dialysis technician candidates. The data of the study were collected with the "Personal Information Form" and the "Short Form of Cyberchondria Severity Questionnaire" prepared by the researchers.

In this study, it was determined that most of the individuals participating in the study searched the symptoms and signs of the disease on the internet, found the sites they used for research safe, and did not drink a drug that was not prescribed by the physician after their research on the internet. The average scale of the participants who found the sites used reliable was 34.0. The average scale of the participants who did not find the sites used reliable was 30.12. According to the results of the independent samples t-test, the difference between the two means was significant (t (58) = 2.236, p = .029 < .05). This finding shows that the participants who find the sites used reliable have higher levels of cyberchondria than those who do not find them reliable.

In this study, there is no statistically significant difference between the scale averages of the participants who smoked a drug that was not prescribed by their physician after an internet search. When the literature is examined, it has been determined that there are more people who do not use drugs that are not prescribed by the physician in parallel with our study (17-20). Unlike this study, the cyberchondria score of the participants who used drugs without the recommendation of a physician was found to be higher (19-20).

In this study, there was no statistically significant difference between the mean scales of men and women (t (21.7) = -0.993, p = .332 > .05). This finding shows that the cyberchondria levels of men and women are at a similar level. When the literature is examined, the cyberchondria scores of the women participating in the study were found to be higher than the men in similarly designed studies (21-22). In the studies, it is thought that the levels of cyberchondria are also higher because the researches made by women on the internet on health are more than men (23-24). There are also studies in the literature that show that men have a higher level of cyberchondria (25).

In this study, there was a significant difference between the scale scores of the participants with chronic disease and those without (Z = -2.490, p = .013 < .05). It shows that participants who do not have chronic diseases have higher levels of cyberchondria than those who do. Looking at the literature, a significant relationship was found between the chronic disease status of the participants participating in the study and the levels of cyberchondria (17, 26-27). Contrary to this study, there are studies to find a significant relationship between the cyberchondria levels of individuals with chronic diseases (1,22,28). Since the study was conducted in a single age group and the majority of the individuals participating in the study did not have a chronic disease, it is thought that there is a relationship between the history of chronic disease and the scale scores.

One of the limitations of the study is that the research was conducted in only one department at a university and the sample size was low due to the high number of students who did not meet the inclusion criteria.

As a result of this study; Most of the participants in the study are women, individuals who do not have a chronic disease, who use the internet for 3-4 hours a day, who search for the signs and symptoms they experience with the disease on websites, who find the websites they use safe, and who do not use drugs without a doctor's prescription, no matter how much they do internet research. When Cronbach's Alpha coefficient of the scale was examined, the cyberchondria scale levels of the participants were found to be high. When the Cyberchondria Severity Scale score averages are examined; There was no significant relationship between age, gender, online research of the signs and symptoms of the disease and the scale score scores of individuals who did not use drugs not prescribed by the physician. As a result of the examination made according to the type of education, the cyberchondria levels of individuals who received education in secondary education were found to be higher than those who studied in normal education. Cyberchondria levels were found to be higher in the participants who found the sites researched on the internet safe and did not have chronic diseases.

Today, people can easily access information through the internet. It is important to control the information in order to make the health-related information encountered on the Internet accurate, complete and functional. In order to access useful information on the Internet, it is recommended to hold congresses, symposiums and informative meetings in schools about accessing the right information for students.

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Data Availability Statement

The data are publicly available on https://dhsprogram.com/data/available-datasets.cfm from Demographic Health Survey website and can be obtained through a request to the Demographic Health Survey program.

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Conflict of Interest

The authors declares no conflict of interest.

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